Il progetto CASCADE

CASCADE | PP4 | ARPA FVG

Presentazione interna| Palmanova | 11 January 2021

CASCADE: progetto strategico INTERREG IT-HR

Strategic theme: **6 - Marine environment**
Specific objective: 3.2 - Contribute to protect and restore biodiversity

Project acronym	CASCADE
Project title	CoAStal and marine waters integrated monitoring systems for ecosystems proteCtion AnD managemEnt
Start date	01/01/2020
End date	31/12/2022

ENVIRONMENTAL AND CULTURAL HERITAGE

S.O. 3.2

Interreg Italy - Croatia CASCADE European Regional Development Fund

EUROPEAN UNION

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EUROPEAN UNION

ARPA FVG agenzia regionale per la protezione dell'ambiente del Friuli Venezia Giulia

CASCADE: obiettivo generale e principale

Project overall objective

The CASCADE project overall objective is to increase marine knowledge through the consolidation of inland and marine waters monitoring (observing and modelling) tools to address environmental vulnerability, fragmentation, and the safeguarding of ecosystem services, to support the protection of marine ecosystems and to develop science-based restoration methodologies and actions to assess the impacts of extreme events on marine ecosystems. In particular, **CASCADE will concretely contribute to biodiversity protection in several Natura 2000** sites also providing monitoring tools, best practices of restoration of endangered species and integrated management plans.

Sintesi dei risultati progettuali attesi

Project results

Three main results will be achieved:

1. *improvement and development of monitoring (observation and modelling) systems;*
2. *access to monitoring data through an information system in support of pilots;*
3. *implementation of pilots focusing on restoration actions and improvement of integrated management systems (e.g. MSP, ICZM, LSI) of marine and coastal areas.*

Specific results to be achieved include:

- **development of integrated advanced monitoring tools** based on existing capacity at national and GOOS MONGOOS (Global Ocean Observing System) level in the Mediterranean Sea-MONGOOS (Mediterranean Oceanography Network Global Ocean Observing System) and EU Level-Copernicus consisting of hydrological, oceanographic and ecosystem observing (inc. bioindicators) and modelling systems to be tested and implemented to assess environment status also in support of pilot restoration actions and the implementation of MSFDIMAP/ EcAp strategies;
- **development of observing and modelling systems** for specific environmental processes such as sediment transport and meteo-marine extreme events and their impacts on marine and coastal ecosystems and validation of the models with observations;
- **one data information system** (inc. web GIS) to provide project results;
- **development of decision support systems**, guidelines, best practices, restoration actions and integrated management of coastal and marine waters and environments;
- **stakeholders engagement and capacity building** through dissemination/communication/training activities/guided tours and scuba diving.

Continuità e portabilità dei risultati progettuali

Outputs and results durability

The monitoring systems will be maintained in operation by relevant partners in line with their institutional duties and depending on additional funding after the project end. Durability will be facilitated by the uptake of project results by competent authorities. The institutional framework of the integrated management plans will ease the collaboration of partners and relevant authorities. Best practices on restoration actions will be shared at local, national and international level in order for stakeholders to uptake and sustain them in the future. A self-sustainable result is the expected improved technical capability of the involved regional and local authorities in the application of MSP, LSI and ICZM principles for coastal management

Outputs and results transferability

The main outputs and results of the project are the following:

1) Integrated monitoring and modeling tools
2) 11 Pilot restoration actions/integrated management plans addressed to marine endangered species and related ecosystems
3) Data platform collecting information and data regarding monitoring
4) MSP, ICZM, LSI decision support framework.

CASCADE outputs and results are inherently scalable and transferable to other territories. The expertise gained by Italy and Croatia for further protecting, managing and restoring their coastal ecosystems will represent a good-practice to be transferred to other European territories with similar environmental needs and institutional set-ups.

I tre principali obiettivi progettuali

Project specific objective 1

Consolidated dialogue for the monitoring, management and restoration of endangered marine ecosystems

CASCADE aims to consolidate the dialogue between Italian and Croatian institutions to support a coordinated framework for the monitoring, governance, management and restoration of marine environment and ecosystem processes of Adriatic regions. The improved and enhanced system consisting of upgraded observing systems and modelling tools will be developed in collaboration by Italian and Croatian partners. Coordinated and join activities on the main topics will allow to build and further develop the already existing technical and strategic dialogue between the Italian and Croatian partners.

Project specific objective 2

Further development and validation of observing and modelling tools for coastal and marine waters.

CASCADE aims to further develop and validate observing and modelling tools for coastal and marine waters and use the observations and model results in all **pilot areas**, providing simulations for the past and short-term forecasting capability and a set of relevant observations. The coastal observing and modelling tools will be developed based on existing capacity such as operational modelling capacity existing at national and GOOS (Global Ocean Observing System) level in the Mediterranean Sea (e.g MONGOOS network) and European Level (Copernicus Marine Service).

Project specific objective 3

Enhanced management of the coastal environment and restoration action practices.

CASCADE will support the adoption of sustainable behaviors, practices and tools (e.g. modelling and observations) for integrated management of the sea (e.g. MSP), restoration of marine ecosystems (e.g. reintroduction and protection of native salt marsh vegetation displaced by non-native species; protection of coastal ecosystems), prediction of events related to extreme meteo-marine events (e.g. heat waves, anoxic events) and assessment of their impacts on ecosystems. This Objective will improve the present capacity of implementation of relevant directives (such as MSP, MSFD, WFD, Habitat) and national legislation for the protection of endangered species and habitats.

Principali outoputs

Main output: **Natural ecosystems with improved conservation status**

Through activities in WP3, WP4 and WP5, at least 5 natural ecosystems will be supported in order to attain a better conservation status, e.g. Posidonia oceanica habitat in Apulia and Croatia; Sandbank habitat (EC habitat 1110) in the MPA Torre del Cerrano in Abruzzo; transitional waters and soft/hard bottom ecosystems in Emilia Romagna and **Friuli Venezia Giulia,** including the threatened salt marsh species Spartina maritima; ……

Main output: **Integrated monitoring and modeling systems and data platform implementation to make coastal, inland and marine data available**

At least 6 Monitoring systems (including observations and modelling) and data collections for protecting biodiversity and ecosystems will be put in place (low cost sensors will be put in place to increase the coverage of monitoring capacity of relevant variables, such as temperature, tidal regime). Most of the Pilots foresee monitoring systems upgrade including the observation and modelling of marine and coastal ecosystems.

Main output: **Soft pilot restoration actions supporting endangered species and coastal and transitional ecosystems**

CASCADE will plan and test at least 5 soft restoration actions supporting endangered species and coastal and transitional ecosystems: Posidonia oceanica in Apulia Region; Tegnùe benthic habitats in Veneto; Pinna nobilis in Cetina river mouth ecosystem; transitional waters ecosystems in Grado and Marano in FVG; Spartina maritima vegetation in North Adriatic lagoons; ……..

Main output: **Integrated management systems for sea, coastal and river environment (MSP, ICZM, LSI)**

At least 6 integrated management systems for sea, coastal and river environment will be put in place based on advanced observing systems and integrated modelling which will allow to assess in real time the risk of extreme events and their impacts on marine ecosystems and to support the evaluation of the lagoon and marine ecosystems status, to improve the biodiversity safety and to test restoration actions. ……..

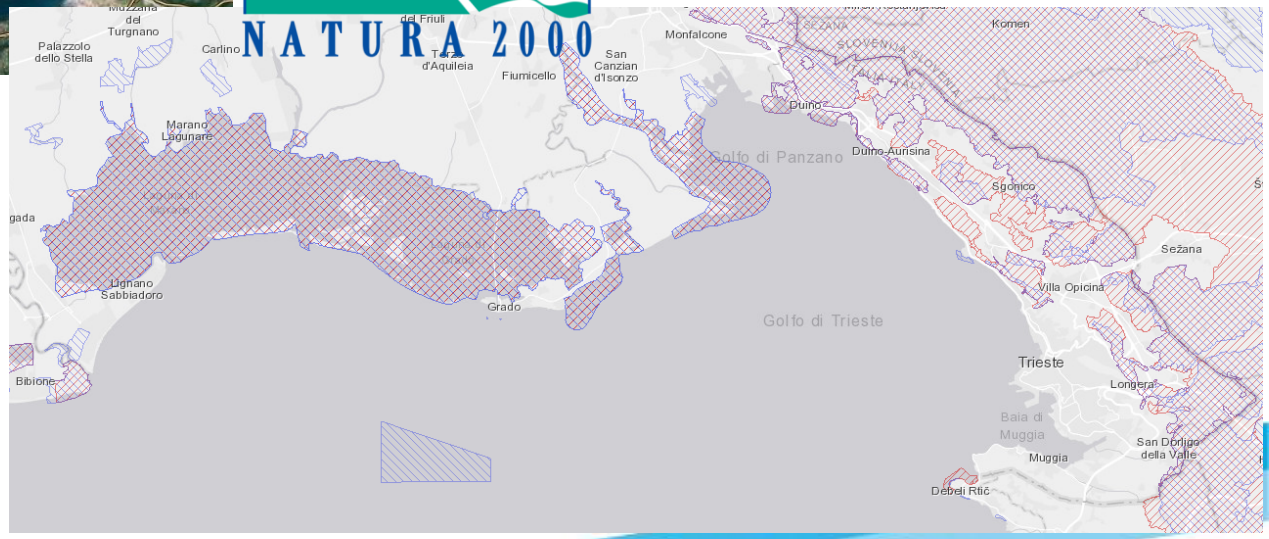
La Pilot di PP11 – ARPA FVG

Ecosystem focus

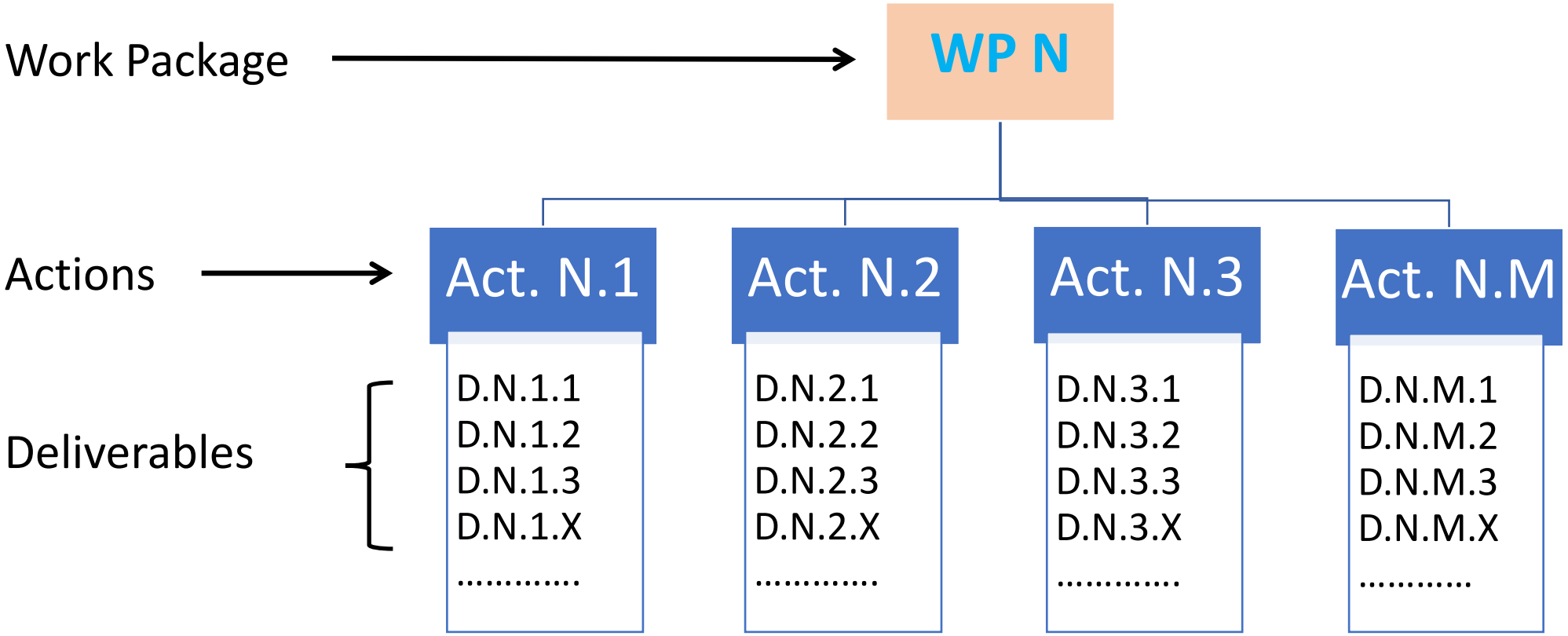
- transitional waters and soft/hard bottom ecosystems, including the threatened salt marsh species Spartina maritima;

Pilot area features

- Environment type: coastal areas, lagoon and open sea
- Relevant ecosystems: Natura 2000 sites



Work Packages – le actions e le deliverables



Periodi progettuali

M01-06	M07-12	M13-18	M19-24	M25-30	M31-36
P1	P2	P3	P4	P5	P6

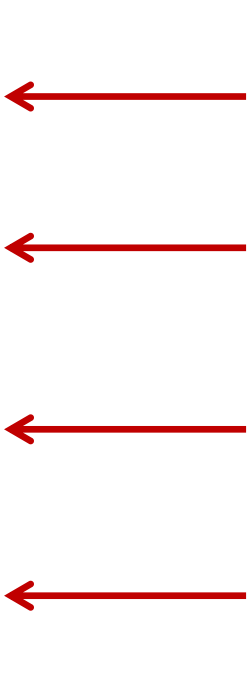
Reporting period	Timeframe	Deadline for submission of the Progress Reports/Final Report
1	[Jan–Jun 2020]	[30/09/2020]
2	[Jul – Dec 2020]	[31/03/2021]
3	[Jan – Jun 2021]	[30/09/2021]
4	[Jul – Dec 2021]	[31/03/2022]
5	[Jan – Jun 2022]	[30/09/2022]
6	[Jul – Dec 2022]	[31/03/2023]

Sono le scadenze fondamentali sullo stato di avanzamento del progetto

Molte altre scadenze riguardano le specifiche deliverable

WP1 Project Management

WP1	*Project management*	Timeframe
1.1	START-UP ACTIVITIES	M1-M6
1.2	DAY-TO-DAY PROJECT MANAGEMENT, COORDINATION AND INTERNAL COMMUNICATION	M1-M36
1.3	STEERING AND MONITORING OF THE PROJECT IMPLEMENTATION	M1-M36
1.4	FINANCIAL MANAGEMENT	M1-M36



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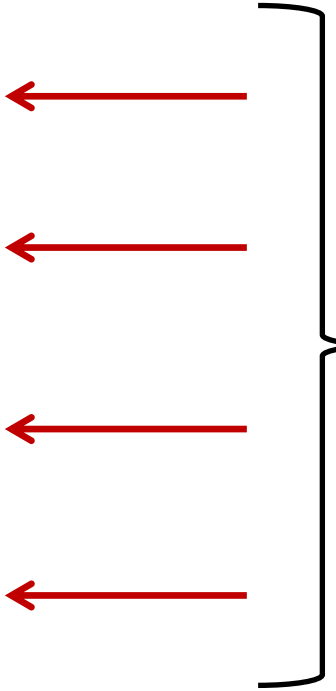
WP2: Communication activities

WP2	*Project Communication*	Timeframe
2.1	START-UP ACTIVITIES (incl. Communication and dissemination strategy)	M1-M6
2.2	WEBSITE, SOCIAL MEDIA AND DISSEMINATION MATERIAL	M1-M36
2.3	Identification of users/stakeholders requirements and engagement	M1-M36
2.4	EVENTS, TRAINING AND WORKSHOPS	M1-M36



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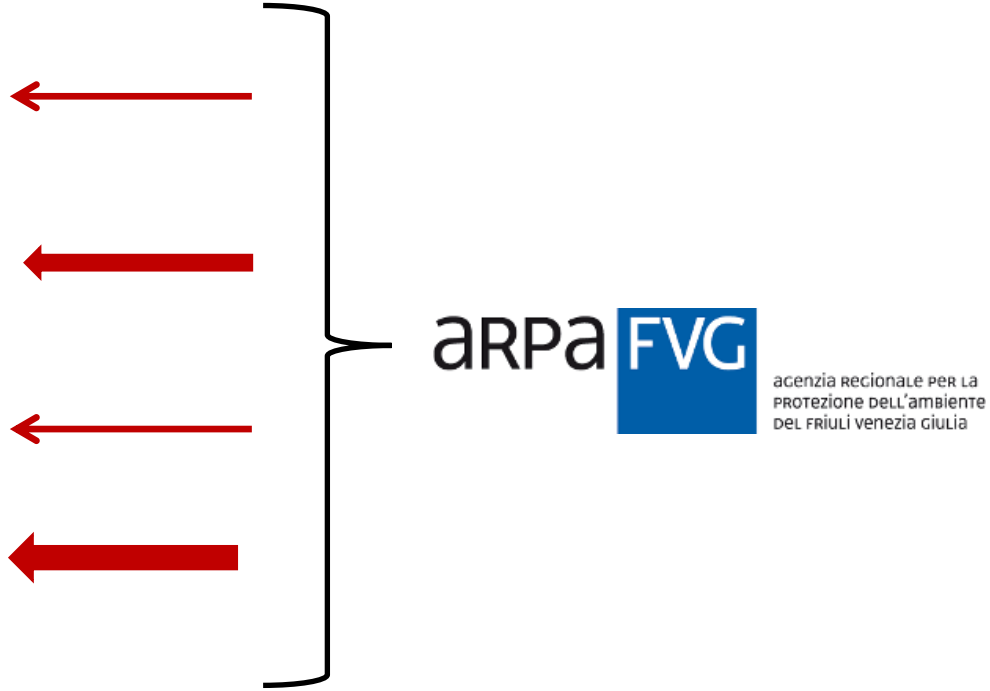
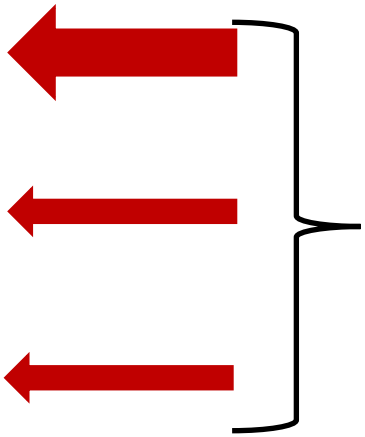
WP3: Coastal marine environment

WP3	*Coastal Marine Environment*	Timeframe
3.1	Review of existing observing and modelling systems	M1-M12
3.2	Ecosystem characterization for each Pilot	M1-M16
3.3	Design of the optimal observing systems for marine coastal environment characterization	M4-M17
3.4	Model design for marine coastal environment characterization	M4-M17



WP4: Monitoring and information system

WP4	*Monitoring and information system*	Timeframe
4.1	Set up and testing of the observing system	M6-M27
4.2	Set up and testing of the integrated modeling system	M6-M31
4.3	Information system for observation, model validation and product delivery	M8-M36



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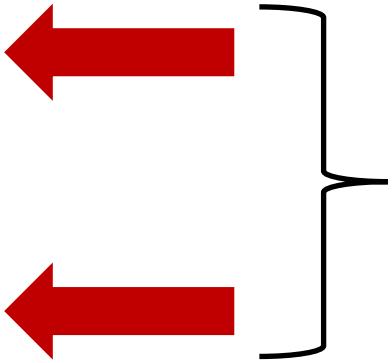
WP5: Pilots

WP5	*Pilots*	Timeframe
5.1	Assessment of hazards, impacts and vulnerability of endangered ecosystems	M7-M36
5.2	Restoration actions supporting endangered species	M10-M36
5.3	Integrated coastal/marine management systems	M12-M36
5.4	Ocean literacy toolkit	M6-M36



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